

17. *ADENIUM OBESUM* (FORSK.) (APOCYNACEAE) – A NEW LARVAL HOST PLANT OF THE COMMON INDIAN CROW *EUPLOEA CORE* (CRAMER) (LEPIDOPTERA: NYMPHALIDAE)

RUDRA PRASAD DAS¹, SIKAS SUBHRA MANNA¹, SOMNATH PAL DAS¹ AND ARIAN BASU ROY^{1,2}

¹Nature Mates-Nature Club, 4/10A Bijoygarh, Kolkata 700 032, West Bengal, India.

²Email: naturemates@gmail.com

The Common Indian Crow *Euploea core* (Cramer), belonging to the sub-family Danainae and family Nymphalidae, is the commonest among the tigers and crows (Kunte 2000) and is widely distributed in India below 2,438 m (Wynter-Blyth 1957). It is a polyphagous insect known to lay its eggs on several species of plants of different families: Apocynaceae (dogbanes and oleanders), Asclepiadaceae (milkweeds), Moraceae (figs), Rubiaceae, Sapotaceae, and Ulmaceae (nettles) (Kehimkar 2008; Kunte 2000; Palot and Radhakrishnan 2001; Palot *et al.* 2005; Robinson *et al.* 2001; Wynter-Blyth 1957).

On the morning of September 27, 2010, a Common Indian Crow was observed laying eggs on the leaves and flowers of *Adenium obesum* (Forssk.) Roem. & Schult.

(family: Apocynaceae) near Contai (21° 46' 40" N; 87° 44' 50" E; 6 m above msl), East Midnapore district, West Bengal, India. After close observation, a few larvae of different instars were also seen feeding on the leaves of the plant. *Adenium obesum*, commonly known as Mock Azalea or Desert Rose, is native to East Africa, Arabia and Socotra. It is also found in the wild in West Africa, especially in Senegal and Nigeria (Bose *et al.* 1991). This succulent shrub has wide adaptability and can grow well from very dry tropics to hot and humid climate. This species is now a naturalised garden plant in India. Our observations on the Common Indian Crow feeding on the exotic *Adenium obesum* is a new addition to the existing list of known larval food plants of the species.

REFERENCES

- BOSE, T.K., B. CHOWDHURY & S.P. SHARMA (1991): Tropical Garden Plants. Horticulture & Allied Publishers, Kolkata. 452 pp.
- KEHIMKAR, I. (2008): The Book of Indian Butterflies. Bombay Natural History Society and Oxford University Press, Mumbai. 497 pp.
- KUNTE, K. (2000): Butterflies of Peninsular India (India: A Lifescape). Universities Press (Hyderabad) and Indian Academy of Sciences (Bangalore). 254 pp.
- PALOT, M.J. & C. RADHAKRISHNAN (2001): New larval food plants of *Euploea core core* (Cramer) (Nymphalidae: Lepidoptera: Insecta). *Zoos' Print Journal* 16(10): 614.
- PALOT, M.J., V.C. BALAKRISHNAN & C. RADHAKRISHNAN (2005): *Mimusops elengi* Linnaeus (Sapotaceae) a new larval food plant of *Euploea core core* (Cramer) (Nymphalidae: Lepidoptera: Insecta). *Zoos' Print Journal* 20(9): 1985.
- ROBINSON, G.S., P.R. ACKERY, I.J. KITCHING, G.W. BECCALONI & L.M. HERNÁNDEZ (2001): Hostplants of the Moth and Butterfly Caterpillars of the Oriental Region. Natural History Museum, London. 722 pp.
- WYNTER-BLYTH, M.A. (1957): Butterflies of the Indian Region. Bombay Natural History Society, Mumbai. 523 pp.

18. A REPORT ON WEED-ASSOCIATED MITES OF SOUTH BENGAL AND THEIR POSSIBLE ROLE IN WEED CONTROL

DEBALINA MANDAL^{1,2}, SALIL K. GUPTA^{1,3} AND NIRMAL DEBNATH^{1,4}

¹P.G. Dept. of Zoology, Vidyasagar College, C.L. Block, Saltlake City, Sector-II, Kolkata 700 091, West Bengal, India.

²Email: mandaldebalina284@gmail.com

³Email: salil_zsidumdum@yahoo.com

⁴Email: nirmaldebnath2012@gmail.com

Introduction

Weeds are serious pests in agro-ecosystems because they extract and deprive soil nutrients meant for agricultural crops, and thus, adversely affect the growth and yield of crop plants. Hence, weed control is becoming an important agricultural practice through chemical control, and to a certain

extent, biological control. Among the biocontrol agents, insects have been found to be quite promising in suppressing weeds. Information on mites in weed control is scarce, with the exception of some work (Kumar *et al.* 1979; Dagar and Singh 1979; Das and Roychaudhuri 1979; Jagannath and Visalakshy 1989). In view of this, a preliminary attempt was

Table 1: Details of mite species collected from weeds of South Bengal

Order and Family	Species	Host Plant	Locality (District)	Date of Collection	Remarks
Order Prostigmata					
Family Tetranychidae	<i>Eutetranychus maximae</i> Nasar and Ghai	<i>Lantana camara</i> L.	Narendrapur (South 24 Parganas)	1.iv.2011	Infests the upper surface of leaf, without showing any noticeable damage.
	<i>Tetranychus urticae</i> Koch	<i>Parthenium hysterophorus</i> L.	Narendrapur (South 24 Parganas)	1.iv.2011, 15.iv.2011	Occurs on the lower surface of the leaves, the colony is covered with thin webs. The feeding induced yellowing of leaves initially, followed by browning and drying of leaves.
	<i>Tetranychus neocaledonicus</i> Andre	<i>Amaranthus viridis</i> L.	Dakshin Barasat (South 24 Parganas)	2.v.2011	Causes chlorosis of leaves.
		<i>Urena lobata</i> L.	Dakshin Barasat (South 24 Parganas)	2.v.2011	Causes chlorosis of leaves.
		<i>Acalypha indica</i> L.	Narendrapur (South 24 Parganas)	16.v.2011	A stray occurrence of this species was noticed on this host causing chlorosis of leaves.
	<i>Tetranychus iudeni</i> Zacher	<i>Abutilon indicum</i> (L.) Swelt.	Narendrapur (South 24 Parganas)	16.v.2011	Heavy infestation, especially at the base of petiole, causing discoloration, yellowing and subsequent drying.
	<i>Petrobia harti</i> (Ewing)	<i>Oxalis corniculata</i> L.	Kalyani Agriculture farm (Nadia)	1.vi.2011	Severe infestation by this mite on both surfaces of leaves, leading to yellowing and browning of leaves.
	<i>Schizotetranychus andropogoni</i> (Hirst)	<i>Cyperus rotundus</i> L.	Narendrapur (South 24 Parganas)	15.vi.2011	Whitish patches, arranged longitudinally on either side of midrib, leading to gradual drying up of leaves.
Family Tarsonemidae	<i>Polyphagotarsonemus latus</i> (Banks)	<i>Physalis minima</i> L.	Mukundapur (South 24 Parganas)	1.vii.2011	Infests the lower surface of young leaves, causing crinkling of leaves.
Family Tenuipalpidae	<i>Brevipalpus deleoni</i> (Banks)	<i>Solanum nigrum</i> L.	Narendrapur (South 24 Parganas)	5.vii.2011	Infested leaves developed brownish patches and dried later.
	<i>Tenuipalpus quadrisetosus</i> Lawrence	<i>Chenopodium album</i> L.	Kalikapur (South 24 Parganas)	20.vii.2011	Recorded on host, doing no damage.
	<i>Swamanychus</i> sp.	<i>Leea</i> sp.	Narendrapur (South 24 Parganas)	30.v.2011	Induced no visible symptoms of damage; represented the second species of this genus known so far.

Table 1: Details of mite species collected from weeds of South Bengal (contd.)

Order and Family	Species	Host Plant	Locality (District)	Date of Collection	Remarks
Family Eriophyidae	<i>Aceria dactylonae</i> Mohanasundaram	<i>Cynodon dactylon</i> (L.) Pers.	Kalikapur (South 24 Parganas)	30.vii.2011	Seen as vagrant on lower surface of leaf.
	<i>Aceria justicae</i> Channabasavanna	<i>Achyranthes aspera</i> L.	Kalyani Agriculture farm (Nadia)	31.vii.2011	A leaf vagrant, and no damage noticed.
Order Mesostigmata					
Family Phytoseiidae	<i>Amblyseius largoensis</i> (Muma)	<i>Croton sparciflorus</i> (Morung)	Narendrapur (South 24 Parganas)	30.iv.2011	A predatory mite; though common on this plant, no feeding on any prey noticed.
	<i>Euseius ovalis</i> (Evans)	<i>Urena lobata</i> L.	Narendrapur (South 24 Parganas)	28.iv.2011	An efficient predator. Abundant feeds on all stages of <i>Tetranychus neocaledonicus</i> .
	<i>Euseius</i> sp. nov.	<i>Eleusine indica</i> Gaertn.	Mukundapur (South 24 Parganas)	28.v.2011	Appears to be a new species.
	<i>Anthoseius bakeri</i> (Garman)	<i>Premna orientalis</i> L.	Narendrapur (South 24 Parganas)	1.viii.2011	Stray occurrence on this host.
	Family Ameroseiidae				
	<i>Kleemanian plumigera</i> Oudemans	<i>Lantana camara</i> L.	Kalikapur (South 24 Parganas)	5.viii.2011	Casual occurrence in inflorescence.
Order Astigmata					
Family Acaridae	<i>Acarus gracilis</i> Hughes	<i>Hygrophila schuili</i> (Buch.-Ham.) M.R. et. S.M. Almeida	Narendrapur (South 24 Parganas)	11.viii.2011	A fungivorous mite, showing only accidental occurrence.

made to explore mites occurring on weeds in selected agro-ecosystems in South Bengal and to observe their role, if any, in weed control.

Material and methods

The mites were collected from agricultural fields in the districts of South and North 24 Parganas and Nadia of West Bengal during April to August 2011. The weeds were examined with a 20x hand lens and the mites were collected from the leaves with the help of a fine, moistened brush. Preservation was done in 70% alcohol and the mites were temporarily mounted in lactic acid for examination under a microscope. Permanent slide preparations were made in Hoyer's medium.

Results and Discussion

The occurrence of 18 species under 14 genera and 6 families, belonging to 3 orders were recorded in the 20 species of weeds examined (Table 1). Of these, 12 species under 4 families were phytophagous and the rest belonged to the predatory group. Among the phytophagous species, 4 species, namely *Tetranychus urticae*, *T. neocaledonicus*, *Petrobia harti*, and *Polyphagotarsonemus latus* were found severely infesting weeds (Table 1), causing loss of vitality and producing damage symptoms. Therefore, these four species may be of some importance in weed control. The population of other mites was comparatively low to exert

any potential effect in reducing weed population. Other than the phytophagous mites, predatory mites of the order Mesostigmata and Astigmata were also recorded occasionally on some weed species (Table 1); the economic significance of these species is unknown.

Mite infestation on weeds has been reported from various parts of India by earlier workers. Das and Roychaudhuri (1979) reported the occurrence of *Polyphagotarsonemus latus* on *Physalis minima*. Mukherjee *et al.* (1987), Jagannath and Visalakshy (1989), Julien and White (1997), Julien and Griffiths (1998), Julien (2001), and Haq and Sumangala (2003) reported several mites on aquatic weeds. Most recently, Gupta (2011) reported about a dozen mite species occurring on weeds in India. The present study, though a preliminary work, forms the first report on mites associated with weeds in South Bengal and points to the scope and need for conducting more intensive studies on weed associated mites.

ACKNOWLEDGEMENTS

The authors are thankful to Dr. G.C. Sadhukhan, Head, P.G. Dept. of Zoology, Vidyasagar College, Kolkata, for providing laboratory facilities and to the Secretary, Ramakrishna Mission Ashrama, Narendrapur, for allowing collection of mites from the campus of the Ashrama.

REFERENCES

- DAGAR, J.C. & V.P. SINGH (1979): *Parthenium hysterophorus* – A new host of *Brevipalpus phoenicis*. *Curr. Sci.* 48: 71–72.
- DAS, L.K. & D.N. ROYCHAUDHURI (1979): *Physalis minima* (Solanaceae) – A new host plant of yellow mite, *Polyphagotarsonemus latus* (Banks). *Sci. and Cult.* 45: 169–170.
- GUPTA, S.K. (2012): Handbook – Injurious and beneficial mites infesting agri-horticultural crops in India and their management. Nature Book India, New Delhi: 362 pp.
- HAQ, M.A. & K. SUMANGALA (2003): Acarine regulators of water hyacinth in Kerala (India). *Expt. Appl. Acarology* 29: 27–33.
- JAGANNATH, K.P. & G. VISALAKSHY (1989): Establishment of the exotic mite, *Orthogalumna terebrantis* Wallwork in water hyacinth in Bangalore, India. *J. Biol. Control* 3(1): 75–76.
- JULIEN, M.H. (2001): Biological control of water hyacinth with arthropods: a review to 2000. Pp. 8–20. In: Julien, M.H., M.P. Hill, T.D. Center and J. Ding (Eds): Proceedings of the Second Meeting of the Global Working Group for the Biological and Integrated Control of Water Hyacinth *Eichhornia crassipes*, 9–12 October 2000, Beijing, China, ACIAR Proceedings 102.
- JULIEN, M. & M.W. GRIFFITHS (Eds) (1998): Biological control of weeds: a world catalogue of agents and their target weeds. 4th Edition. Commonwealth Agricultural Bureau International Publishing, Wallingford, UK, 223 pp.
- JULIEN, M. & G. WHITE (1997): Biological control of weeds: theory and practical application. ACIAR Monograph No. 49: 192 pp.
- KUMAR, S., S. JAYARAJ & T.S. MUTHUKRISHNAN (1979): Natural enemies of *Parthenium hysterophorus*. *J. Ent. Res.* 3(1): 32–35.
- MUKHERJEE, I.N., R.N. SINGH, R.K. SINGH & J. SINGH (1987): A preliminary report on the mite fauna associated with water hyacinth (*Eichhornia crassipes*) in Eastern Uttar Pradesh. *Sci. and Cult.* 53: 180–181.